Probability I

1. a) $1 - .4 = .6$

   b) $.3 + .1 = .4$

   c) $.3 \cdot .3 = .09$

   d) $.9 \cdot .9 \cdot .9 = (.9)^3 = .729$

   e) $1 - (.6 \cdot .6 \cdot .6) = .784$

   1 − (pobability of no US cars) ← this is how you should think about the problem.

   f) $.7 \cdot .7 \cdot .7 \cdot .3 = (.7)^3 \cdot (.3) = .1029$

2. a) $(.75)^5 = .2373$

   b) $1 - (.25)^5 = .999$ [1 − (prob all correct)]

   c) $.25 \cdot .25 \cdot .25 \cdot .75 = (.25)^3 \cdot (.75) = .012$

3 a. i. .2

ii. $.1 + .2 + .2 = .5$

iii. $1 - [p(\text{orange})] = 1 - .2 = .8$

b i. $(.2)^4 = .0016$

ii. $(.8)^4 = .4096$

iii. $1 - p(\text{none are red}) = 1 - (.9)^4 = .3439$

iv. $(.9)^3 \cdot .1 = .0729$

4. No – you are talking about the Law of Averages, which is false. Assuming that you have a very large # of M&Ms, the events are independent & therefore, you are not more likely to pick a red than before.